From

Applicant: University of California
Filed. Herewith
Docket. 1133.010WO1
Title: Bryostatins, Bryopyrans and Polyketides: Compositions and Methods

COMPUTER READABLE FORM:

Medium Type:	Diskette
Computer:	IBM compatible
Operating System:	WINDOWS 95
Software:	FastSEQ Version 4.0

Date Recorded: August 3, 2000

INTERNATIONAL PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA et al.
Serial No.: New Filing
Filed: 04 August 2000 Docket: 1133.010WO1
Title: BRYOSTATINS, BRYOPYRANS, POLYKETIDES: COMPOSITIONS AND METHODS

COMMUNICATION REGARDING SEQUENCE LISTING

BOX PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In accordance with Rule 1.821(e) and in compliance with WIPO Standard ST.23, submitted herewith is a copy of the SEQUENCE LISTING in computer readable form, as recited at pages 1- 80 of the above-identified international application also submitted herewith.

It is respectfully submitted that the contents of the paper version of the SEQUENCE LISTING recited at pages 1- 80 and the computer readable version of the same, both of which are submitted herewith, are identical. The enclosed SEQUENCE LISTING has been converted into the ASCII format using the Word(Perfect) conversion tool.

Please direct any inquiry to the below-signed attorney at (612) 373-6900.

Respectfully submitted,

SCHWEGMAN, LUNDBERG,
WOESSNER & KLUTH
P.O. Box 2938
Minneapolis, Minnesota 55402
(612) 373-6900

Date: 04 August 2000 By

Ann S. Viksnins
Reg. No. 37,748

SEQUENCE LISTING

<110> University of California

<120> Bryostatins, Bryopyrans and Polyketides: Compositions and Methods

<130> 1133.010WO1

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<150> 60/147,283

<151> 1999-08-04

<160> 38

<170> PatentIn Ver. 2.1

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<222> (1)..(17)

<223> N in this sequence refers to I or insosine

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acgattcatt gtgaggatgt aaacccacag attgcgttgg aaggtagccc cttttatatc 240
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20 25 30

Asn Ile Gly His Leu Gly Val Gly Ala Gly Ile Ala Gly Val Thr Lys
35 40 45

Val Leu Leu Ser Leu Gln His Arg Met Leu Pro Pro Thr Ile His Cys
50 55 60

Glu Asp Val Asn Pro Gln Ile Ala Leu Glu Gly Ser Pro Phe Tyr Ile
65 70 75 80

Asn Thr Glu Leu Lys Pro Trp Gln Ser Gly Asp Gly Ile Pro Arg Arg
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Ala Gly Val Ser Ser Phe Gly Val Ser
100 105

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Asn Ile Gly His Leu Gly Val Gly Ala Gly Ile Ala Gly Val Thr Lys
        35                  40                  45

Val Leu Leu Ser Leu Gln His Arg Met Leu Pro Pro Thr Ile His Cys
    50                  55                  60

Glu Asp Val Asn Pro Gln Ile Ala Leu Glu Gly Ser Pro Phe Tyr Ile
65                  70                  75                  80

Asn Thr Glu Leu Lys Pro Trp Gln Ser Gly Asp Gly Ile Pro Arg Arg
                85                  90                  95

Ala Gly Val Ser Ser Phe Gly Val Ser Gly Thr Asn Ala His Leu Val
            100                 105                 110

Leu Glu Glu Tyr Thr His Arg Val Thr Ser Pro Leu Gln Asn Thr Ile
        115                 120                 125

Leu Pro Gln Asn Gly Leu Phe Ile Val Pro Leu Ser Ala Lys Asn Asp
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Glu Cys Leu Asn Ala Cys Val Glu Arg Leu Leu Phe Phe Leu Lys Ser
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Arg Gln Ser Asp Thr Tyr Lys Lys Tyr Ser Leu Ser Asp Thr Ala Pro
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195 200 205

Lys Leu Asn Ala Phe Ile Glu Lys Gln Asn Thr Ile Lys Ala Ser Asn
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20 25 30

Asn Ile Gly His Leu Asp Val Ala Ala Gly Val Val Gly Leu Ile Lys
35 40 45

Thr Ala Leu Ser Leu Gln His Arg Leu Leu Pro Pro Thr Ile Asn Tyr
50 55 60

Glu Ala Pro Asn Arg Glu Ile Asn Phe Glu Gln Ser Pro Phe His Val
65 70 75 80

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Gly Val Ser Ser Phe Gly Ile Gly
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agcctgcatt ttaatagcgc caatcaccac tttgattttc aacagtcgcc tttttatgtc 240
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gcggtcagtt cttttggtgt cagt 324

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<213> Endobugula sertula

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Val Asp Asn Trp Arg Lys Asn Thr Cys Ala Leu Gly Ser Val Lys Ser
20 25 30

Asn Ile Gly His Thr Ser Ala Ala Ser Gly Val Ala Gly Ile His Lys
35 40 45

Val Leu Leu Ser Leu Lys His Arg Gln Leu Val Ala Ser Leu His Phe
50 55 60

Asn Ser Ala Asn His His Phe Asp Phe Gln Gln Ser Pro Phe Tyr Val
65 70 75 80

Asn Thr Gln Leu Arg Pro Trp Asp Gln Ala Glu Gly Leu Glu Glu Ser
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Arg Arg Arg Ala Ala Val Ser Ser Phe Gly Val Ser
100 105

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caattacact gcaaagaacc gagtcctcat atcccctgga aacgtctgcc tctcgatttg 240
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<213> Endobugula sertula

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20 25 30

Asn Ile Ser His Leu Glu Ala Ala Gly Gly Ile Ser Gly Leu Ile Lys
35 40 45

Ala Val Leu Ala Met Gln His Gly Val Ile Pro Gln Gln Leu His Cys
50 55 60

Lys Glu Pro Ser Pro His Ile Pro Trp Lys Arg Leu Pro Leu Asp Leu
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Val Gln Glu Gln Thr Val Trp Pro Glu Ser Glu Glu Arg Ile Ala Ala
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Val Thr Ala Ser Asp
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20 25 30

His Ala Asn Ala Gly Ala Gly Ile Ala Gly Phe Ile Lys Thr Val Leu
35 40 45

Ser Leu Tyr His Gly Lys Ile Ala Pro Asn Ala Gly Asn Thr Glu Pro
50 55 60

Asn Ala Ala Leu Asn Leu Asp Ala Phe His Phe Ala Leu Pro Lys Thr
65 70 75 80

Leu Leu Thr Trp Pro Glu Cys Asp Val Arg Arg Ala Ala Ile Ser Ser
85 90 95

Leu Gly Phe Gly
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gttgcagctc tgattaaggc agttttggtt cttcaacatg gcgtggctcc ggccaatttg 180
cactgtcaca aattgaatcc gcttctggat atcgacggct tcaatgttgt gttcccgcag 240
tctgagaccc ccttgcacag ctctctgcag ctacttggcg ggtatcagtt cgttcgggtt 300
tggt 304

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Ala Leu Gly Asp Pro Ile Glu Phe Gly Ala Ile Lys Ala Val Tyr Gly
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Pro Gly Arg Ser Ser Pro Leu Val Leu Gly Ala Leu Lys Ser Asn Ile
20 25 30

Gly His Leu Glu Ala Thr Ala Gly Val Ala Ala Leu Ile Lys Ala Val
35 40 45

Leu Val Leu Gln His Gly Val Ala Pro Ala Asn Leu His Cys His Lys
50 55 60

Leu Asn Pro Leu Leu Asp Ile Asp Gly Phe Asn Val Val Phe Pro Gln
65 70 75 80

Ser Glu Thr Pro Leu His Ser Ser Leu Gln Leu Leu Gly Gly Tyr Gln
85 90 95

Phe Val Arg Val Trp
100

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gccggagtat ctggagtagt caaagtgtta ctcgctttga aacataagca acttccacct 180
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Pro Tyr Thr Glu Lys Lys Asn Tyr Cys Ala Ser Gly Ser Val Lys Ser
20 25 30

Asn Ile Gly His Leu Thr Ala Ala Gly Val Ser Gly Val Val Lys Val
35 40 45

Leu Leu Ala Leu Lys His Lys Gln Leu Pro Pro Ser Cys His Leu Val
50 55 60

Lys Ile Asn Glu His Ile Asn Leu Glu Asp Ser Pro Phe Tyr Ile Asn
65 70 75 80

Thr Ala Leu Lys Lys Trp Glu Val Ser Glu Gly Glu Ala Arg Arg Ala
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Ala Val Ser Ser Phe Gly Ser
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cactttgaga cccccaatcc gcagatcgat tttgccgaca gtccctttta tgtaaataca 240
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<211> 102

<212> PRT

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20 25 30

Gly His Ala Asp Thr Ala Ala Gly Val Ala Gly Leu Ile Lys Thr Val
35 40 45

Met Ala Leu Lys Ala Arg Gln Ile Pro Pro Ser Leu His Phe Glu Thr
50 55 60

Pro Asn Pro Gln Ile Asp Phe Ala Asp Ser Pro Phe Tyr Val Asn Thr
65 70 75 80

Thr Leu Lys Asp Trp Asn Thr Asn Gly Val Pro Arg Arg Ala Gly Val
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Ser Ser Phe Gly Ile Gly
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Ala His Thr Gln Glu Arg Gln Tyr Cys Gly Leu Gly Ser Val Lys Thr
            20   25   30

Asn Ile Gly His Thr Asp Ser Ala Ala Gly Ile Ala Gly Leu Leu Lys
        35   40   45

Ile Val Met Ala Met Lys His Arg Gln Leu Pro Pro Ser Leu Asn Phe
    50   55   60

Glu Thr Pro Asn Pro Asp Leu Asp Leu Glu Asn Ser Pro Phe Phe Ile
65   70   75   80

Gln Thr Lys Leu Lys Asp Trp Glu Ser Val Gly Pro Arg Arg Ala Ala
                85   90   95

Leu Ser Ser Phe Gly Leu Gly
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<223> TAG may represent a transposase open reading frame

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<222> (444)..(449)
<223> TTGAAA may be a possible -35 trascription control sequence

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<222> (458)..(463)
<223> GATAAT may be a possible -10 trascription control sequence

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<222> (474)..(502)
<223> ATCAATAAAAA and TTTTTATTGAT are inverted repeats

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<222> (576)..(583)
<223> TGAGGAAT may be a possible SD sequence

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<222> (565)..(567)
<223> ATG encoding M is presumptive start of PKS Open reading frame

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<222> (589)..(591)
<223> GTG encoding V is is possible alternative start of PKS Open reading frame

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<223> N refers to any nucleotide

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tggtattggc cntagaagaa aaagggtttt ttgacctttt tacaaggaat agatacctta 300
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<212> DNA
<213> Endobugula sertula

<220>
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<222> (1)..(1954)
<223> N refers to any nucleotide

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aatcwataca aaaaawattg awagattttt kggtkgacat tactaacttt ttsgaggcna 180
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gaaggaacga ttmaccagta tatctcataa arkwcmttct tttattgttg ataaaaaaaa 360
ttacccaatg ttaccaaatt ttggattaga aaatgattct aataaagaaa ataaaggctg 420
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cagtacaaaa aataaagatt acgcgattct tgaaaatcta ataaataatg gagttggagt 540
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aaggccnaan tggaattaat tggnaaaatt tccantttgg gtttttaaaa aggggaaaaa 1860
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nttnntgggg gnaaaaattt aaaaatttaa tttn 1954

<210> 34
<211> 2672
<212> DNA
<213> Endobugula sertula

<220>

<221> misc_feature

<222> (1)..(2672)

<223> N refers to any nucleotide

<400> 34

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naaggcttca agggcatcgg tcaaggaacc tttcggcggg cttttgctgt gcgacaggct 180

cacgtntaaa aaggaaataa atcatgggtc ataaaattat cacgttgtcc gggcgcggcg 240

acgaatgttc tgtatgcgct gtttttccgt ggcgcgttgc tgtctggtga tctgccttct 300

aaatctggca cagccgaatt gcgcgagctt ggttttgctg aaaccagaca cacagcaact 360

gaataccaga aagaaaatca ctttaccttt ctgacatcag aagggcagaa atttgccgtt 420

gaacacctgg tcaatacgcg ttttggtgag cagcaatatt gcgcttcgat gacgcttggc 480

gttgagattg atacctctgc tgcacaaaag gcaatcgacg agctgsrcym scrmaktygk 540

gmcmccgkmw cctwmrarst twttcscaaw rragkktywt tmawmaagsm cscygskrky 600

gswwwtggwr ctawccacgm arcssmwwty gaaamaccks rkcyggntkw csrawawmwa 660

cmrsmycasc cttggwawmm armrwsmtga syywgckcwg aamaakgtwa ccstcrgkgc 720

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agacaangaa agcgatggat gaactnnngg cttccttatg tccgcccggc caktcatgat 900

ggaatgtttc ccccsggtgg tgttatctgg caccagtgcc gtcgatagnt antgcnaant 960

tngantaant tnattnatca tttngncggg ntcctttncc ggncgatccn gccttgttta 1020

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<211> 2132
<212> DNA
<213> Endobugula sertula

<220>
<221> misc_feature
<222> (1)..(2132)
<223> N refers to any nucleotide

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ttkwtkrrwa mwrawcyagy wwmscamatc rgrtgttwta tggrrsssrg wmyawwtraa 300
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tcmmmwwttt gaaaaccmyw attatakktr taagsgggcc aaataatcaa tgttggatat 420
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<210> 36
<211> 2169
<212> DNA
<213> Endobugula sertula

<220>
<221> misc_feature
<222> (1)..(2169)
<223> N refers to any nucleotide

<400> 36
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ktttaaraga rattkwwaar rraactggrw traaktwwww rwrttatwat anaaatrkkw 420
aakggwwrta tagagggaaa aaaatttaaa ggataaatga argaaaccca tcwccattta 480

ttttccaaga sgaccaaaga aatgatagaa gttgttaaat ttatggrtgc gtaaaaagaa 540
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Ile Lys Arg Lys Asp Lys Lys Ser Lys Gln Arg Leu Asn His Asp Arg
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Gly Leu Val Leu Leu Gly Gly His Leu Phe Glu Glu Leu Arg Leu Ser
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Lys Ala Ser Ala Ile Ser Phe Thr Asp Thr Leu Cys Val Gln Gly Leu
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Tyr Pro Ser His Tyr Pro Phe Val Pro Gly Phe Glu Val Ser Gly Val
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Ile Arg Gln Val Gly Glu His Ile Thr Asp Leu His Val Gly Asp Glu
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Val Ile Ala Phe Thr Gly Ser Ser Met Gly Gly His Ala Ala Tyr Val
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Thr Val Pro Gln Asp Tyr Val Val Arg Lys Pro Lys Asp Leu Ser Phe
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Glu Asp Ala Cys Ser Phe Pro Leu Ala Phe Ala Thr Val Tyr His Ser
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Phe Ala Arg Gly Lys Leu Ser His Asn Asp His Ile Leu Ile Gln Thr
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Ala Thr Gly Gly Cys Gly Leu Met Ala Leu Gln Leu Ala Arg Leu Lys
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Gln Thr Ile Asn Leu Leu Gly Leu Leu Asn Lys Gly Asp Asp Gly Phe
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Ala Arg Ile Ser Tyr Phe Leu Asn Leu Lys Gly Pro Cys Leu Ala Ile
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Phe Val Pro Gly Glu Gly Val Gly Val Val Leu Leu Lys Arg Met Ser

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Lys Ala Gln Ser Ala Leu Glu Gln Glu Val Tyr Gln Arg Phe Asn Ile
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Tyr Thr Asp Lys Arg His Tyr Cys Ala Leu Gly Ser Val Lys Ser Asn
770 775 780

Ile Gly His Leu Gly Val Gly Ala Gly Ile Ala Gly Val Thr Lys Val
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Asn His Ala Ser Thr Val Ile Ile Pro Leu Ser Ala Lys Ser His Asn
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Tyr Pro Phe Ala Arg Asp Arg Tyr Trp Leu Pro Glu Lys Pro Arg Tyr
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Lys Gln Leu Leu Val Glu Gln Leu Ser Gln Ser Leu Lys Leu Asp Met
1490 1495 1500

Asn Glu Ile His Pro Asp Glu Ser Phe Ala Asp Tyr Gly Val Asp Ser
1505 1510 1515 1520

Ile Thr Gly Ala Ser Phe Ile Gln Gln Leu Asn Asp Thr Leu Thr Leu
1525 1530 1535

Thr Leu Lys Thr Val Cys Leu Phe Asp His Ser Ser Val Asn Arg Leu

1540 1545 1550

Thr Ala Tyr Leu Leu Ser Asp Tyr Gly Asp Asp Ile Ala Gln Trp Leu
1555 1560 1565

Ala Thr Ala Pro Ala Leu Val Asp His Pro Gln Ser Val Val Ser Gln
1570 1575 1580

Val Leu Pro Glu Arg Ser Pro Ala Ser Thr Gln Ala Lys Pro Leu Pro
1585 1590 1595 1600

Ser Val Pro Pro Ser Leu Ser Met Glu Ser Pro Val Gln Gln Glu Ser
1605 1610 1615

Ile Ala Ile Ile Gly Met Ser Gly Arg Phe Ala Ala Ser Glu Asn Leu
1620 1625 1630

Glu Ala Phe Trp Gln Gln Leu Ala Gln Gly Val Asp Leu Val Glu Pro
1635 1640 1645

Ala Ser Arg Trp Gly Pro Gln Ala Glu Thr Tyr Tyr Gly Ser Phe Leu
1650 1655 1660

Lys Asp Met Asp Gln Phe Asp Pro Leu Phe Phe Asn Leu Ser Gly Val
1665 1670 1675 1680

Glu Ala Ser Tyr Met Asp Pro Gln Gln Arg Cys Phe Leu Glu Glu Ser
1685 1690 1695

Trp Asn Ala Leu Glu Asn Ala Gly Tyr Val Gly Asp Gly Ile Glu Gly
1700 1705 1710

Lys Arg Cys Gly Ile Tyr Ala Gly Cys Val Ser Gly Asp Tyr Ala Gln
1715 1720 1725

Leu Leu Gly Asp Gln Pro Pro Pro Gln Ala Phe Trp Gly Asn Ala Ser
1730 1735 1740

Ser Ile Ile Pro Ala Arg Ile Ala Tyr Tyr Leu Asn Leu Gln Gly Pro
1745 1750 1755 1760

Ala Thr Ala Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Val His
1765 1770 1775

Leu Ala Cys Gln Ala Leu His Leu Asp Glu Met Glu Met Ala Leu Ala
1780 1785 1790

Gly Gly Val Ser Leu Tyr Pro Thr Pro Ile Ile Val Glx Val Phe Ala
1795 1800 1805

Trp Cys Arg Tyr
1810